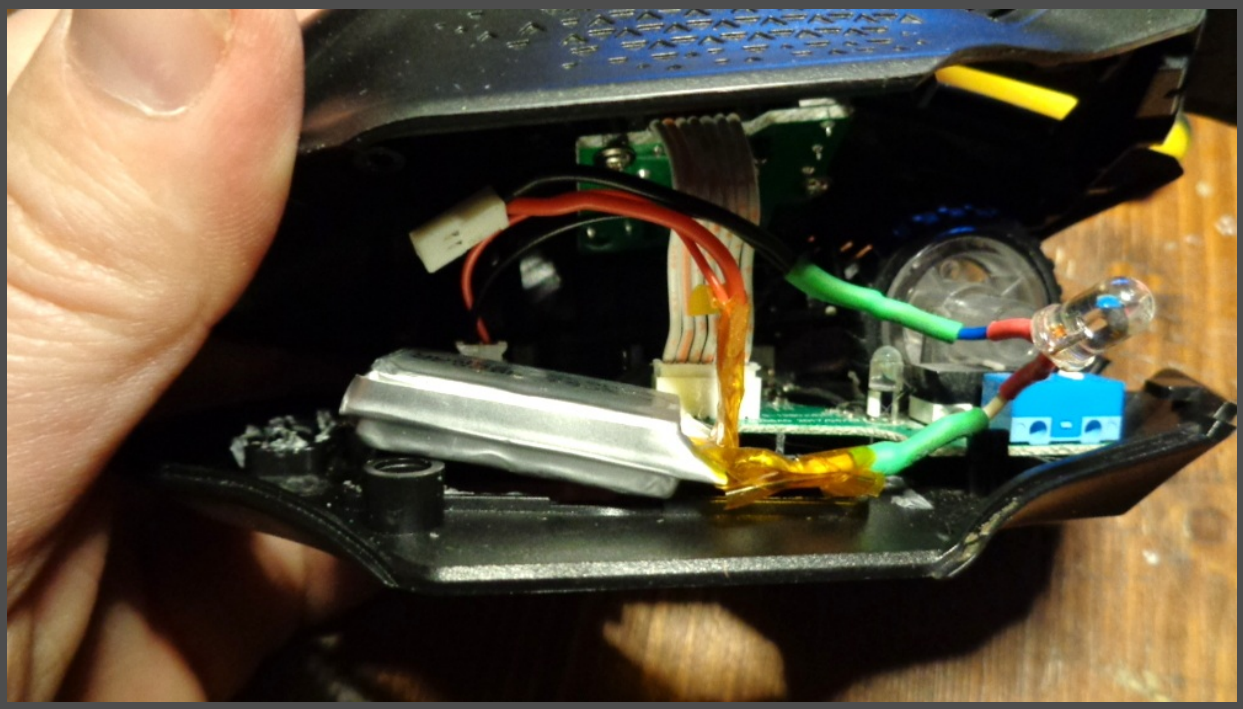


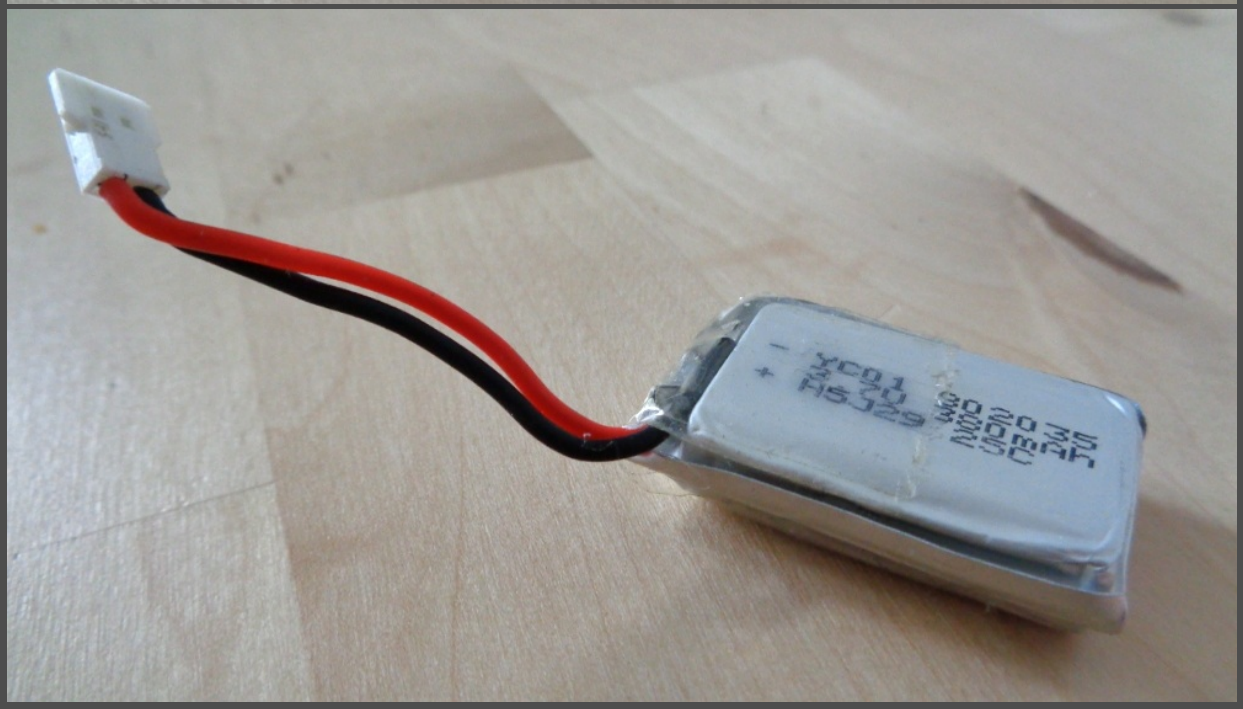
## Tecknet Mouse Battery Mod

### Preface

Some almost two years ago I ordered a computer mouse in China. It had enough DPI for my computer games and no cable, because it was connected to the laptop via bluetooth. Unfortunately you had to put in AA disposable batteries over and over again, which not only costs a lot of money but is also harmful to the environment. I kept putting it off again and again, because everything runs quite well and I had enough batteries in stock. Yesterday night that was the last one and I had to come up with a solution the next day. To save money I decided to install a battery that can be recharged via a USB cable. Since I didn't want to spend money again, I took the battery off the Bed Lamps Project. A broken mouse is an urgent problem as a nice lamp to read.

### Materials

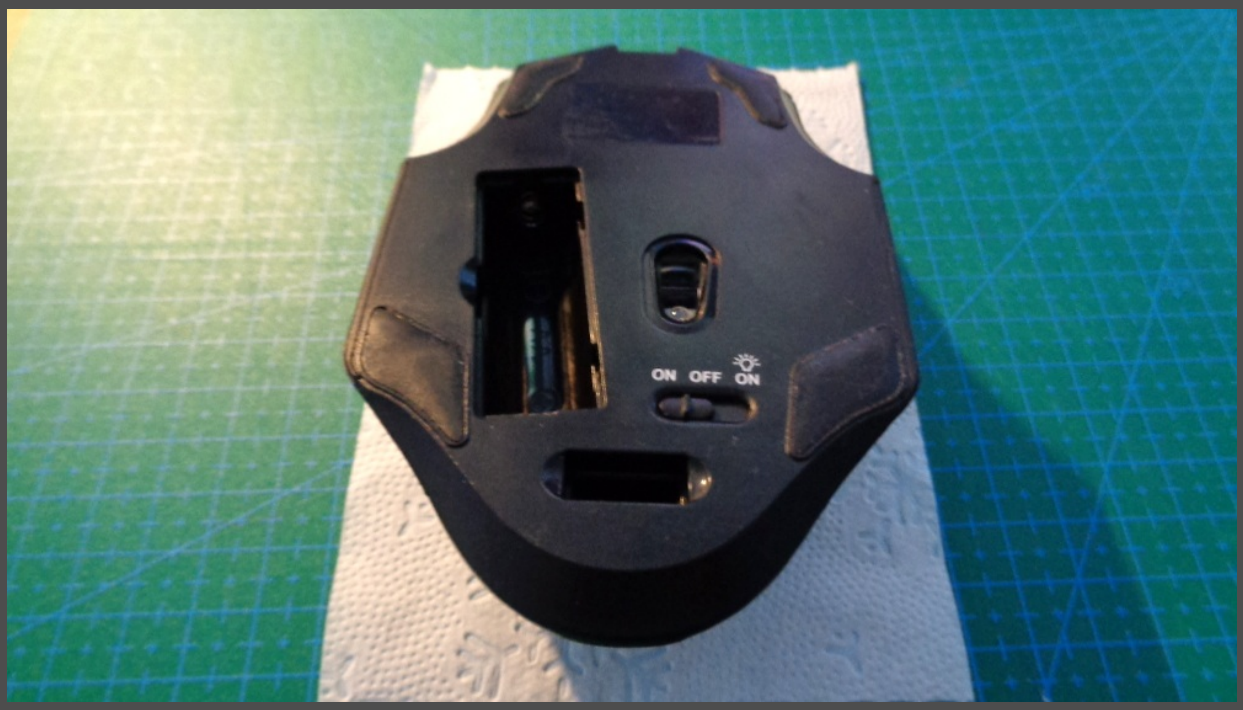
Since I don't link to products in my articles, you have to find the mouse yourself at an online retailer. Just enter Tecknet Wireless Mouse and you will find the right offers. Otherwise we need the battery from the bed lamps project. Please have a look at the specifications there.




- Tecknet Wireless Mouse
- Anti Static Tape
- Solder and Iron
- Heat Shrink Tube
- Screwdriver and Bits
- Precision Knife
- Flat-nosed Pliers
- Wire Cutter
- LED (White)
- Resistor (brown, black, black, gold) 10 Ω ± 5%
- Safety Goggles

**Realisation**


Before I start with a project I always get an overview. The battery compartment is located at the bottom and is closed with a simple plastic lid. Nothing special. At that time, I didn't know where the screws on the mouse were. First you remove all components that are not screwed. In this case this is the cover of the battery compartment.



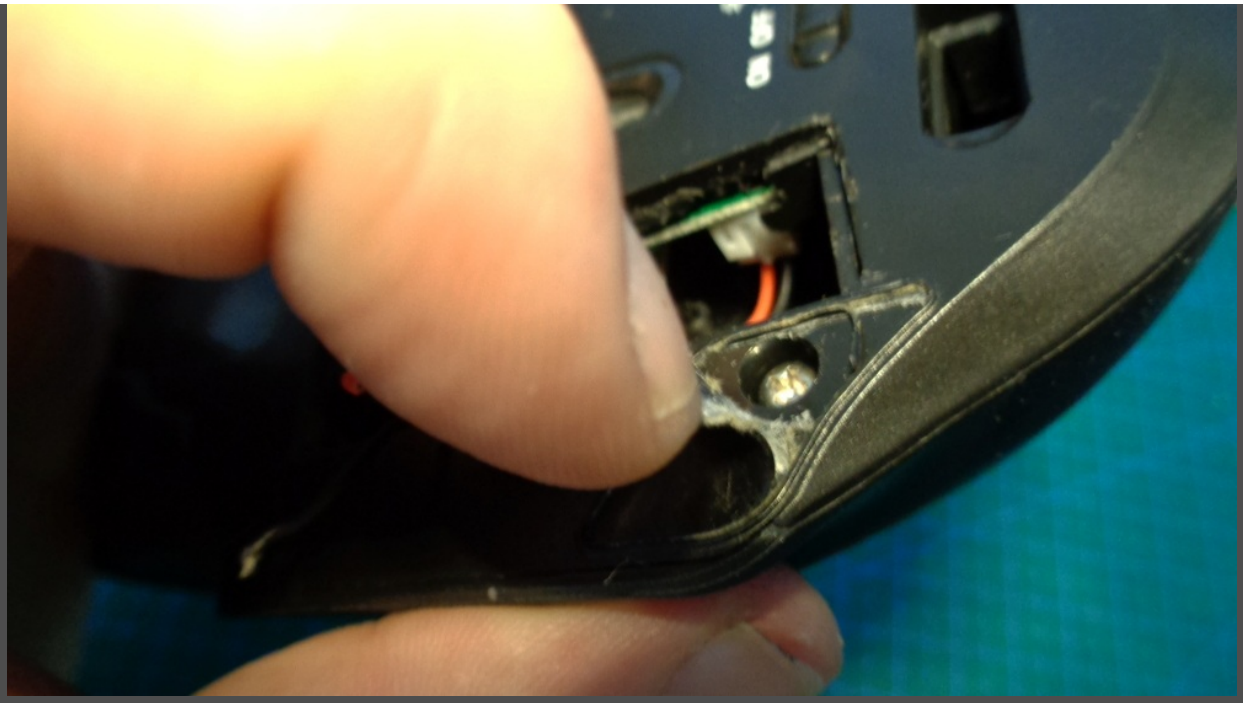

When the mouse was sent to me by mail, the bluetooth dongle was in the small compartment at the end of the mouse. Since this is a prefabricated opening, you might be able to use it for a connector. Otherwise, it's just an unnecessary waste of space that you can't use sensibly. The on/off switch and the laser can't be changed from the position and this probably also applies to the electronics inside the mouse.


To see better you can use a small LED lamp. With this you can also look into cracks or small recesses. At the ends of the battery compartment were two metal contacts soldered with a red and a black cable. These are the power supply (GND) and (VCC), which supply the mouse with power. It's good to know that certain wires are not on the PCB, but are soldered as single cables. This is often an advantage with cheap hardware from China.

Since I want to install a rectangular battery, I no longer need the old battery compartment. I scratch the edge of the compartment with a model knife and *cut* it out. This takes a little time and is also exhausting, but works best with the small case. I had thought about using my Multitool, but you can slip off quickly and scratch the case. I'd rather do it the traditional way, with my hands.

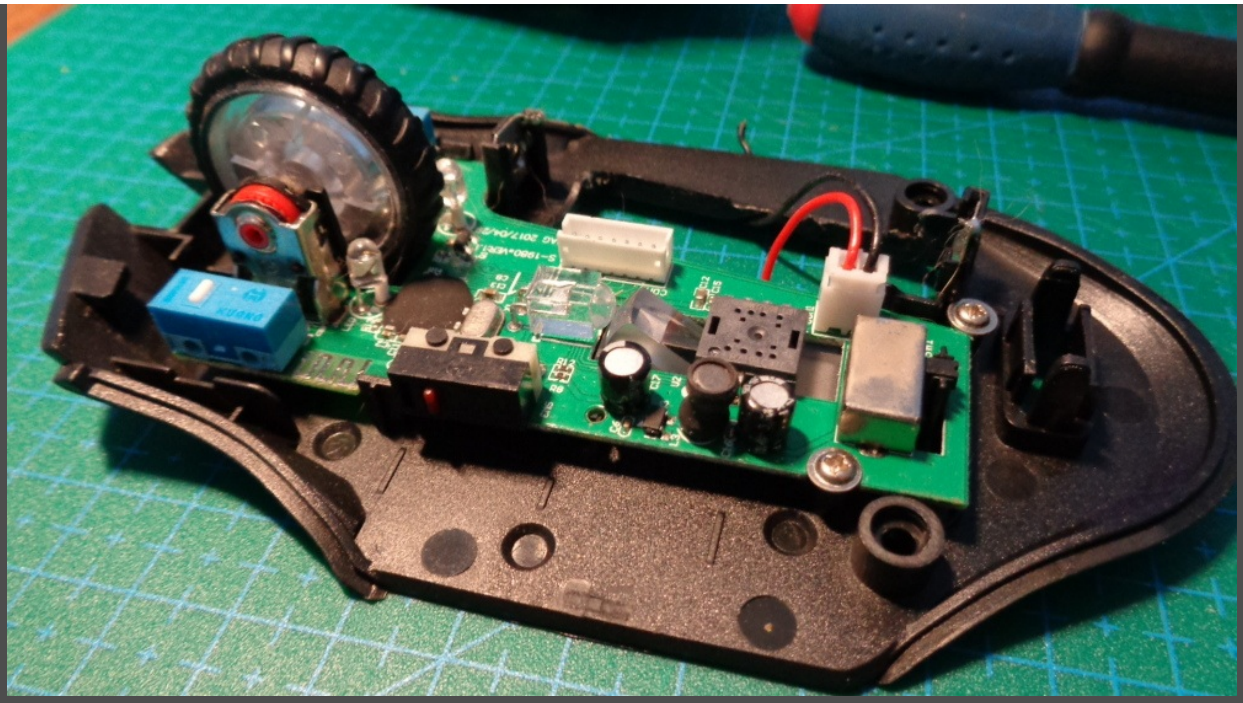
Small pieces can easily be broken out with a flat-nosed pliers. But you have to work carefully, because plastic can tear really fast and we don't want to break the bottom of the computer mouse.

I cut off the metal contacts with a wire cutter. If necessary you can also use old scissors. Since I can now look much better into the inside of the mouse, I see two printed circuit boards altogether. One is on the upper side and regulates individual buttons there. On the lower board there is the whole rest, the mouse wheel, the left/right mouse button, the side buttons and the power supply. Both circuit boards are connected, which makes it difficult to disassemble the mouse.

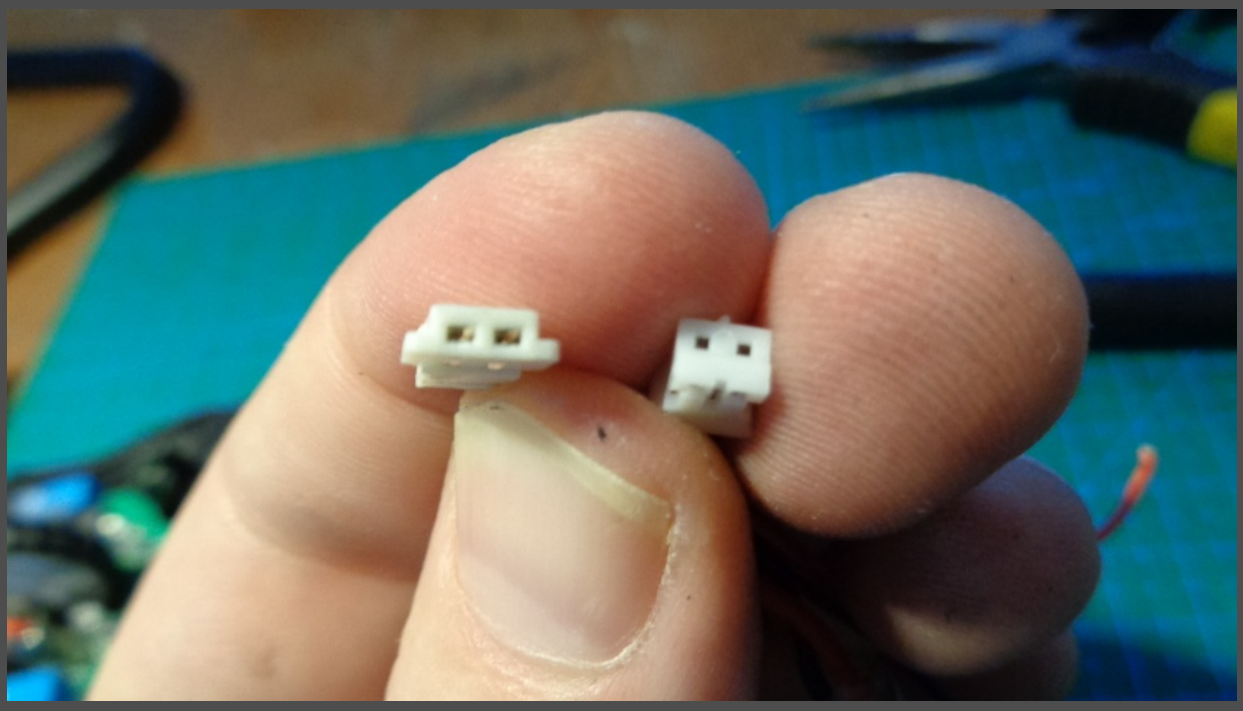


After a further examination of the underside of the mouse I finally found two screws. These were hidden under two small plastic parts. Unfortunately they were attached with double-sided adhesive tape and were very difficult to loosen. Actually one should work out a better solution, which is more environmentally friendly. Spontaneously I can't think of a good idea.

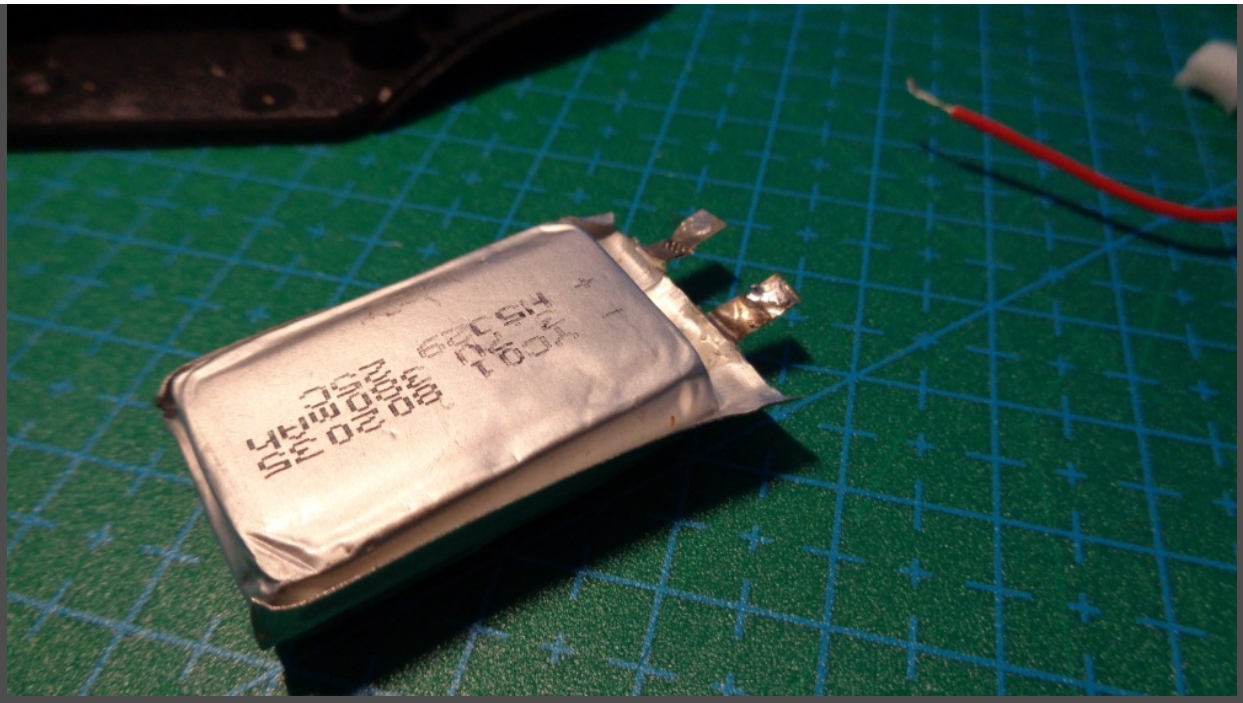

The two screws can easily be unscrewed. Only when removing the upper shell of the case you have to jerk a little carefully. At the front there are two small hooks that hold the top shell to the bottom. You should pull the component back slightly until it comes loose on its own.



Here you can see very well the lower circuit board with its components. In the middle is the mouse wheel and two small white LEDs. The right LED lights up blue and flashes three times when the right battery is connected to the connector. The left LED lights up red once when the battery is empty or you have connected a wrong battery. We will come back to this point later. The small blue boxes left and right of the mouse wheel are the push buttons for the left and right mouse button. The small black box on the left side is for the side mouse buttons. To the right we see three capacitors. At the end is the on/off switch with a small metal housing. Behind it we see the connector for the battery with the red and the black cable. The grey part in the middle is the holder and the lens for the laser. At the back there is a white plug with seven metal pins. The upper circuit board is connected to this plug.

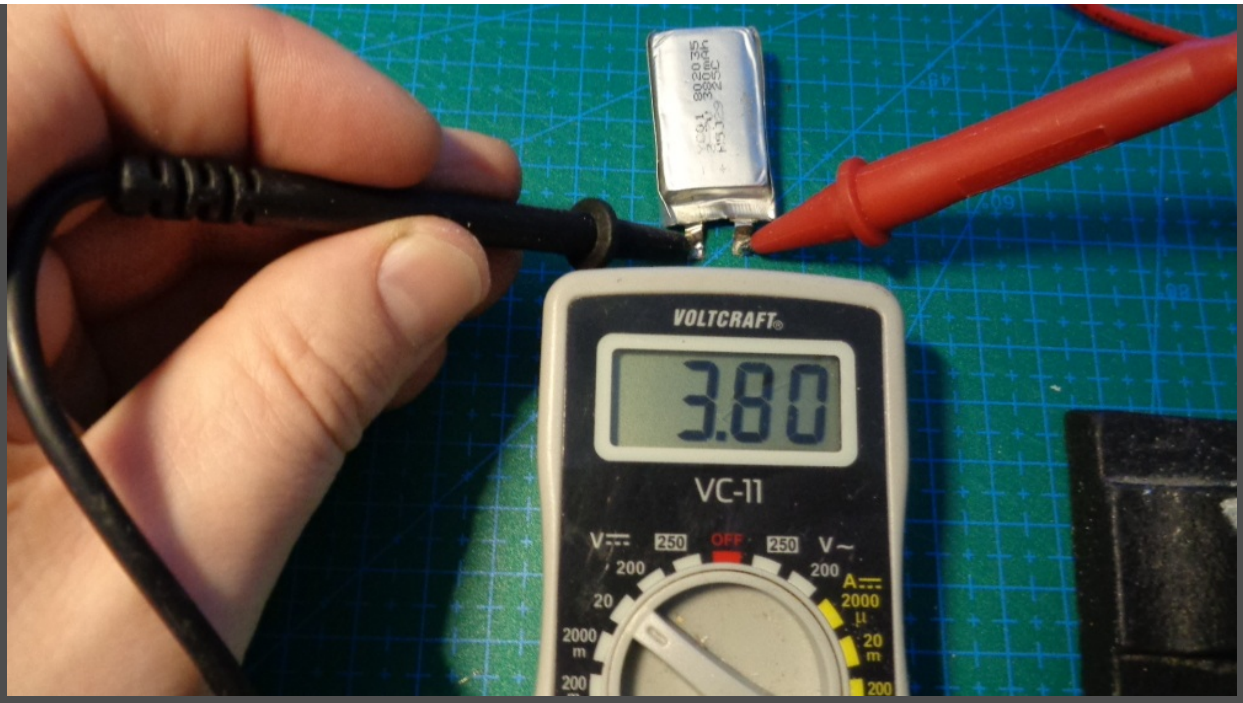


Unfortunately it turned out that the old plug did not match the plug of the battery. But that gave me another idea. If I solder both plugs to the battery, I can use the charger cable of my old drone from which I took the battery. So I wouldn't have to remove the plug from the mouse and connect it with the cable, but would have a permanent connection between PCB and battery.

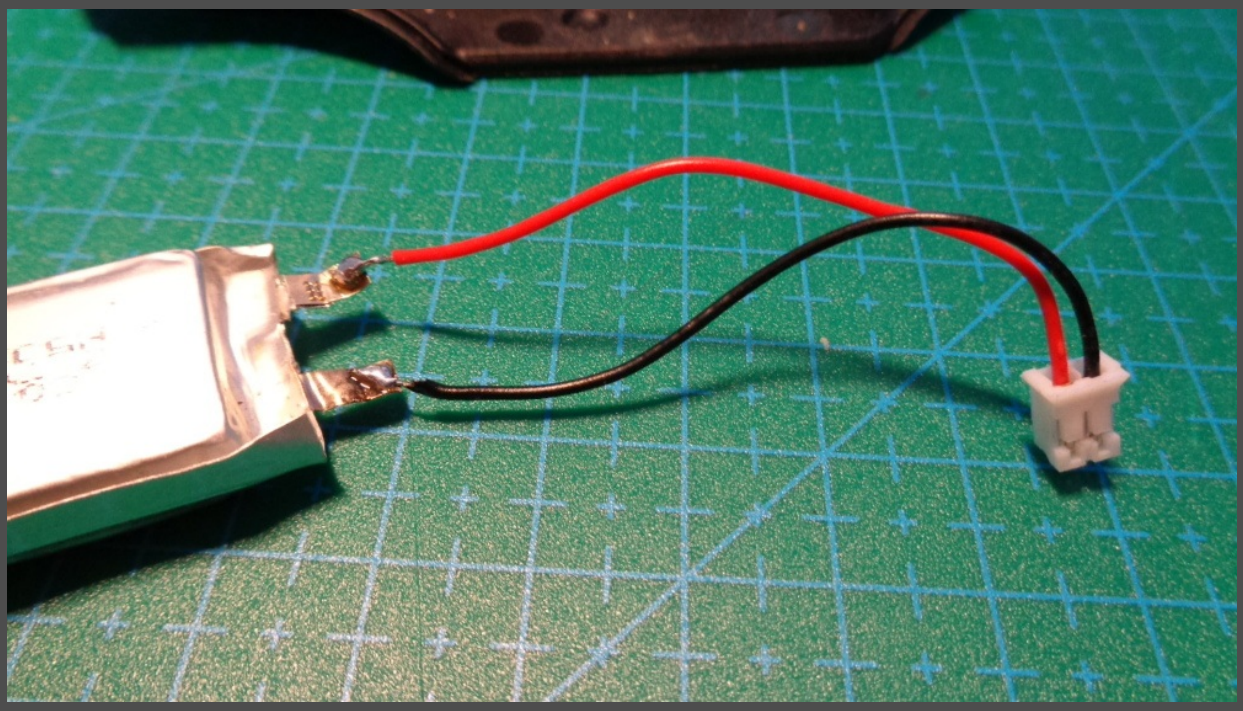


So that the cables hold better at the contacts, I soldered both again with solder. This gives a better durability and prevents the solder connections from breaking through. Later the two places are still secured with anti static tape or shrink tubing.

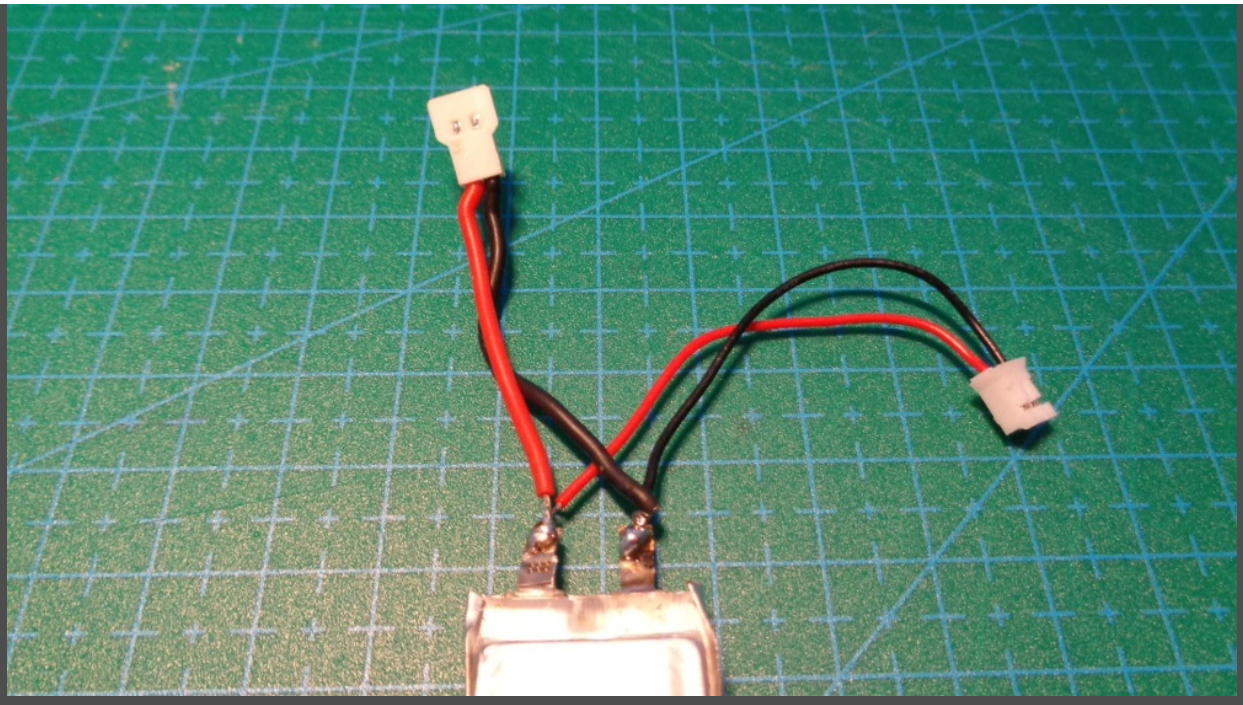

If you have a small multimeter, it moves very fast on the desk when you measure something. Unfortunately, it's too easy, unlike the big multimeters. With a clamp you can fix it to the table and you've solved the problem. The simplest ideas are still the best.



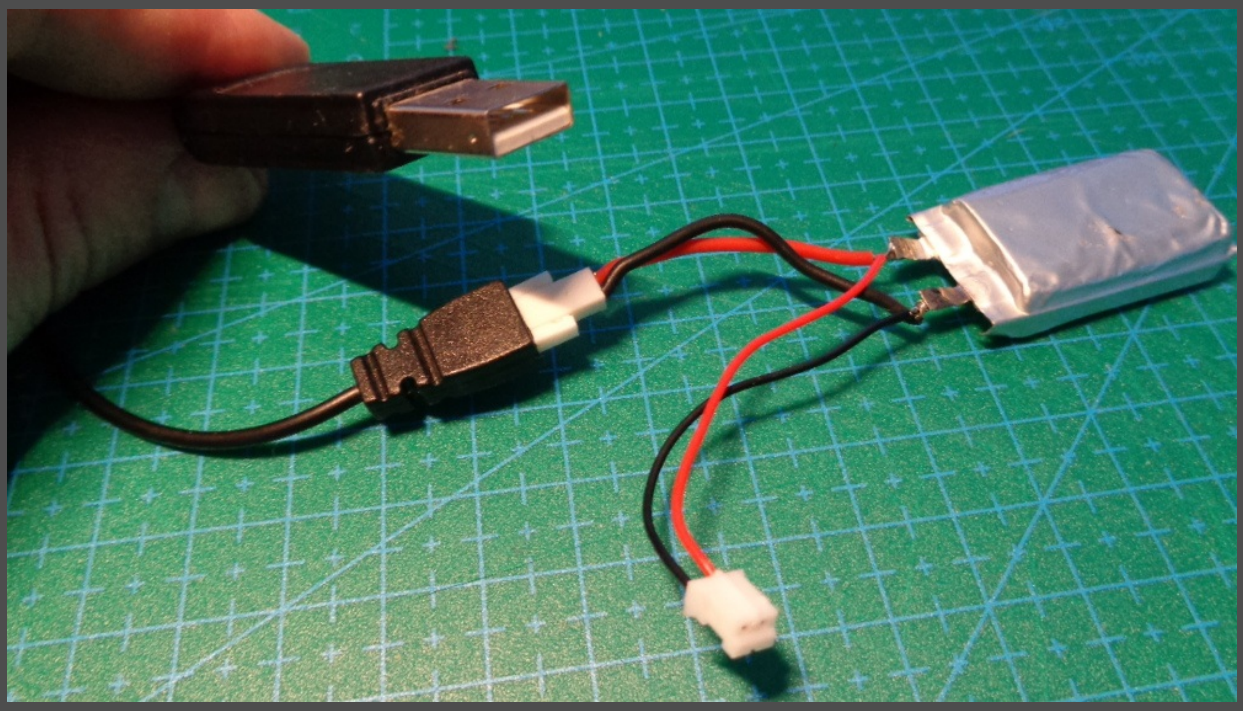

The multimeter shows 3.8v, which is about what was printed on the battery (3.7v).



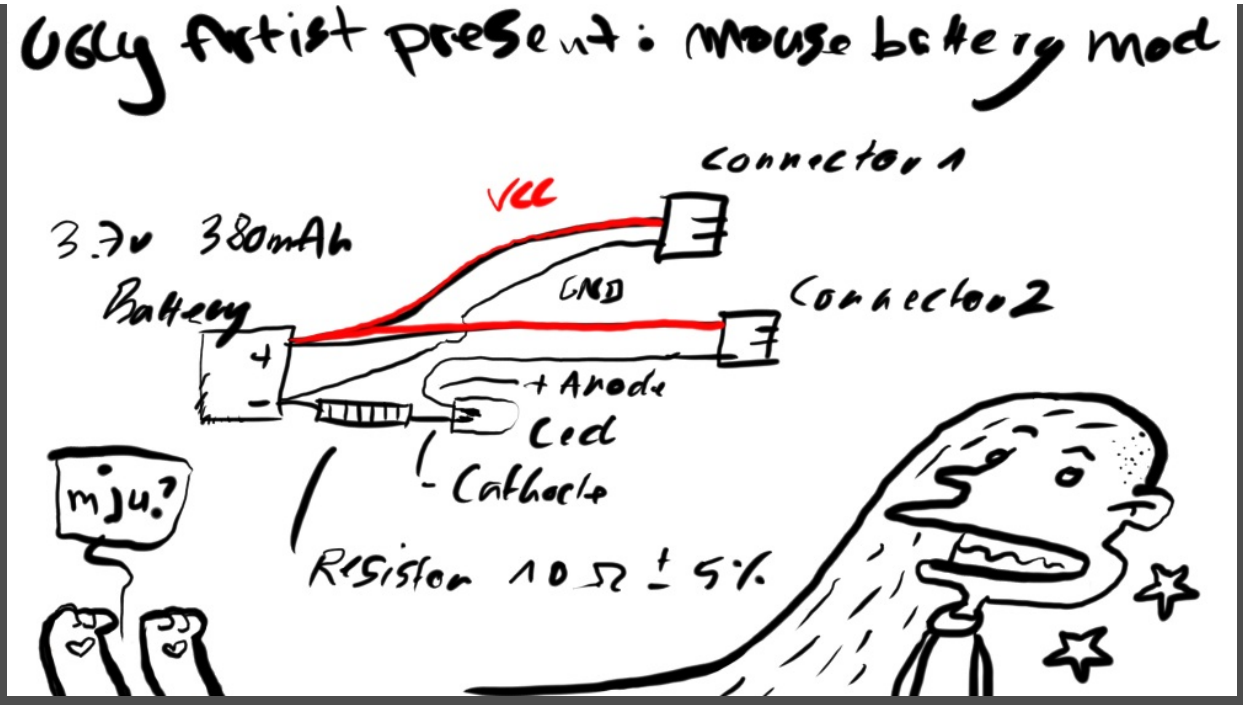
First the cable for the printed circuit board was soldered on. Attention! If you solder on a battery, don't hold the hot soldering iron too long because it could damage the battery. I'm quite sure that it could explode even if the heat is too high, but I didn't investigate this in detail. So please wear safety glasses to protect your eyes. Just because of the liquid solder alone you should wear the glasses, because that can be quite unpleasant, even if it should splash into the eye.



Here you can see how the second cable was soldered.



After testing if I can charge the battery with the USB cable (which works), I simply connected it to the PCB. Unfortunately this doesn't work and both LEDs only light up once. I just wanted to see if it works, because sometimes technical devices can use stronger batteries. at least if they are not too strong. Unfortunately, the next five photos didn't turn out as good as they looked on the small display of the digital camera. I didn't make a calculation for the estimate either, but just soldered something to the battery and it worked the first time. At that time I relied on the experience from my old projects. I am an incredibly bad theorist and rely on my practical skills. As a project worker, I wouldn't work like that, of course, and you shouldn't take me as a role model anyway. Unfortunately, the success usually proves me right and in my head this gives everything I do a meaning. You have to get along with a drawing of the photos.




Here a detailed drawing (+s) how the battery was rewired. At the one GND (black) cable to the PCB I soldered a 10 Ohm resistor and a white LED (the bigger ones). As I already wrote above, I didn't calculate that and immediately hit the bull's eye. I reconnected all the wiring and the blue LED lights up three times. I then reconnected the mouse to my laptop and tested it briefly. Everything worked as it was (not) planned.


After everything was connected, the housing could be screwed again. After that I recharged the battery over night, because I had to lie down anyway.

## Conclusion

I didn't plan anything for this project. The battery was empty and I had to find a solution as soon as possible. Normally I don't work like that, because I usually want to know what I'm doing. So sometimes I also do the calculations for my projects, but I like to express myself there. As I wrote above, I am a 100% practitioner and not a theorist. Since the mouse only cost 14€, it wouldn't have been bad if it had been broken. Nevertheless one should not work so really and in each company one would have warned me certainly at least for such a project work. No insurance would have read this documentation. But hey! You also have to show the other side and if you rebuild this project AND do the calculations, you have learned a lot. Of course, it could also be that I was lucky by a strange coincidence. I like to leave this finding of truth to the theorists and prefer to dedicate myself to the next project. I just love solving problems and why it worked in the end doesn't really interest me. There are still so many and exciting problems that I want to investigate and solve. It is already difficult for me to document my projects in a halfway understandable way. Whatever. Since three days my mouse works perfectly and it doesn't look like I have a loose contact or technical errors somewhere.